



94-1-RE - 08/519,362

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

 Reissue  
Application  
of:

Richard G. Henry

Serial No.: 08/519,362

Filed: August 25, 1995

 For: LEAK DETECTION IN HEATING,  
VENTILATING AND AIR CONDI-  
TIONING SYSTEMS USING AN  
ENVIRONMENTALLY SAFE  
MATERIAL

Group Art Unit: 2212

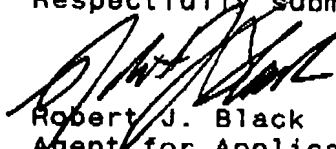
Examiner: J.D. Wiggins

SURRENDER OF PATENT IN ACCORDANCE WITH 37 CFR 1.8a
 Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

In view of the Examiner's phone conference of April 18, 1996, indicating that the subject reissue application is in condition for allowance, the original letters patent 5,421,192 is surrendered herewith.

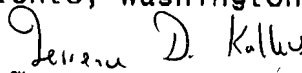
Respectfully submitted,

  
Robert J. Black  
Agent for Applicant  
Reg. No. 24,498

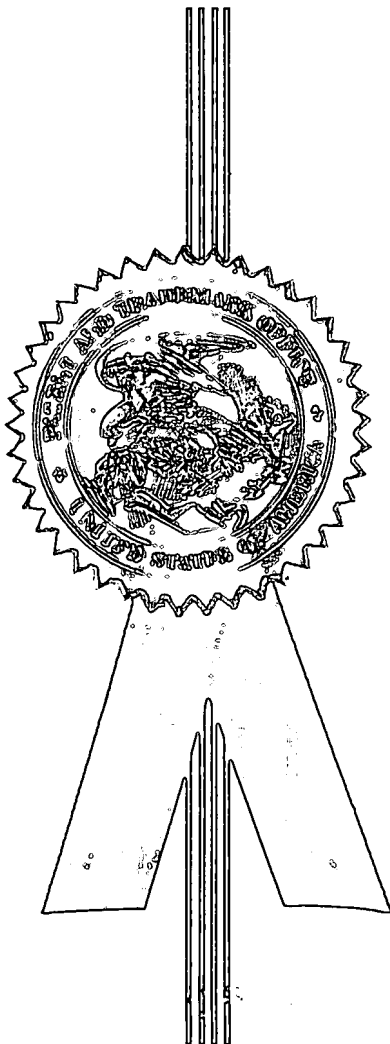
 Carpenter and Black  
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Park Ridge, IL 60068

## CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

  
Terrence D. Kailey
Date: APRIL 3, 1996

*The  
United  
States  
of  
America*



The Commissioner of Patents  
and Trademarks

*Has received an application for a patent  
for a new and useful invention. The title  
and description of the invention are en-  
closed. The requirements of law have  
been complied with, and it has been de-  
termined that a patent on the invention  
shall be granted under the law.*

*Therefore, this*

United States Patent

*Grants to the person or persons having  
title to this patent the right to exclude  
others from making, using or selling the  
invention throughout the United States  
of America for the term of seventeen  
years from the date of this patent, sub-  
ject to the payment of maintenance fees  
as provided by law.*

*Bruce Lehman*

Commissioner of Patents and Trademarks

*Karna J. Cooper*

*Attest*



US005421192A

**United States Patent** [19]**Henry**[11] **Patent Number:** **5,421,192**[45] **Date of Patent:** **Jun. 6, 1995**

[54] **LEAK DETECTION IN HEATING,  
VENTILATING AND AIR CONDITIONING  
SYSTEMS USING AN ENVIRONMENTALLY  
SAFE MATERIAL**

[75] **Inventor:** **Richard G. Henry, Mayfield Heights,  
Ohio**

[73] **Assignee:** **Bright Solutions, Inc., Bloomfield  
Hills, Mich.**

[21] **Appl. No.:** **312,772**

[22] **Filed:** **Sep. 27, 1994**  
(Under 37 CFR 1.47)

**Related U.S. Application Data**

[63] **Continuation-in-part of Ser. No. 81,119, Jun. 25, 1993,  
Pat. No. 5,357,782.**

[51] **Int. Cl.<sup>6</sup>** ..... **G01N 37/00**

[52] **U.S. Cl.** ..... **73/40.7; 252/963;  
252/962; 250/301**

[58] **Field of Search** ..... **73/40.7, 40.5;  
250/301.16, 301.21, 301.36, 301; 252/964, 963,  
962**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

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*Assistant Examiner*—J. David Wiggins

*Attorney, Agent, or Firm*—Robert J. Black

[57] **ABSTRACT**

The present invention relates to the effective leak detection of refrigerants by the addition of dyes from the general chemical class of naphthalimide fluorescent dyes in a refrigeration system where said refrigeration system employs alone, or in combination, a refrigerant in a hermetic system such as, but not limited to, chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC), hydrofluorocarbons (HFC) and any hydrogen, halogenated or ether derivatives of the methane, hydrogen, halogenated, ether or cyclic derivatives of either ethane, propane, butane, pentane, mixtures of HCFC, HFC, hydrocarbons, carbon dioxide and ammonia.

Leakage is determined by inspection of the sealed system using a lamp having an emission wavelength from 300 to 480 nanometers providing an indication of any system leakage.

**15 Claims, No Drawings**